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ADDITIONS TO THE ORNITHOLOGY
—OF—
GUADALUPE ISLAND.

By WALTER E. BRYANT.

Extract from Bulletin 6, California Academy of Sciences.

ADDITIONS TO THE ORNITHOLOGY OF GUADALUPE ISLAND

BY WALTER E. BRYANT.

The avifauna of Guadalupe Island was entirely unknown to science until 1875, when Dr. Edward Palmer, in the interest of the U. S. National Museum, made a collection of seventy-two specimens embracing eight species of land birds and one water bird found dead on the island.¹ The results of this work were published by Mr. Robert Ridgway.²

In "The Birds of Guadalupe Island," Mr. Ridgway remarks that "the land birds contained in the collection from Guadalupe embrace only eight species, so that the fauna of the island is by no means fully represented; indeed, the collector observed a humming-bird, two kinds of owls, and a hawk, of which no specimens were obtained. This is to be regretted, since most, if not all, of these would doubtless have proved new. It is altogether likely, too, that other species escaped notice, and thus remain to be discovered; a rich field is therefore left to the future explorer."

I have twice visited in pursuit of ornithological studies this remote island, which is extremely difficult of access. In January, 1885, I spent a brief time on Guadalupe, sufficient time, indeed, to but increase my desire for further investi-

NOTE ¹.—The eight species of land birds were determined to be new to science. The water bird was an adult specimen in breeding plumage of the Pacific Loon (*Urinator pacificus*).

NOTE ².—"Ornithology of Guadeloupe Island, based on notes and collections, made by Dr. Edward Palmer." Bulletin, Hayden's Survey, 1876, No. 2, p. 183.

See, also, Bulletin of the Nuttall Ornithological Club, Vol. II, p. 58, July, 1877.

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gation. Through the kindness of Mr. Luis Huller I was enabled at the end of the same year to make a second visit, landing on the island on December 16, 1885. My expectation was to stay about six weeks, but as it eventuated, it was one hundred and twelve days before an opportunity presented itself for me to leave the island. During these three months and a half I had ample time to most thoroughly prospect the island and to make a careful study, not only of the birds themselves but of their habits, number and distribution.

Guadalupe being almost unknown and charts quite unattainable, a few words in the way of description may serve to render more lucid the remarks which follow.

Guadalupe Island is situated about two hundred and twenty miles to the southward and westward of San Diego, the northern extremity lying in about $29^{\circ} 10'$ N., $118^{\circ} 18'$ W. Extending about fifteen miles in length, with a maximum width of five miles, it is said to reach at its highest point an altitude of 4,523 feet. It is of volcanic origin, as is evidenced by the loose, burnt rocks, and broken lava which cover the entire island. Rocks varying in size from the smallest pebble to that of a cocoa nut are thickly strewn about on every hand, while in places, huge boulders and ledges crop out. An unbroken ridge rising to its greatest height in the central portion extends the entire length of the island from north to south, forming a "hog's back." On the western side of this range, the land slopes rapidly towards the ocean, ending in many places in high perpendicular cliffs.

Towards the south the land is somewhat lower, sloping more gradually and ending less abruptly. It is noticeable that the southern part of the island, which is the lowest, is very rocky and barren, no trees growing below the central mesa. Whatever vegetation exists there, consists of stunted alfileria and scattered sagebrush. The western side is broken by two great cañons separated by a barren hill of

reddish rock. The northern portion consists of a very sharp ridge nearly or quite perpendicular on the western face, while on the eastern slope it descends rapidly and hides its surface under a covering of sagebrush.

For convenience of reference, I shall mention the wooded tracts under four distinct heads:—

First—At the northern end of the island is a fast decaying forest of pines, extending within narrow limits along the sharp ridge and down the almost perpendicular western face. Among these pines are to be found a few hardy oaks upon whose branches grow huge acorns, said to be the largest in the world. A few isolated pines are found growing along the ridge nearly to its central portion.

Second—Far down on the northwestern slope is a large grove of cabbage palms.

Third—On the highest part of the island, with the exception of a single peak (Mt. Augusta), is situated a large grove of cypress trees covering an area of a mile or more on the western slope; the eastern side of this forest ends abruptly at the edge of the ridge, below which is a comparatively level table land.

Fourth—On this plateau grows a small cypress grove. Here I had my permanent camp, within half a mile of which were several springs and pools of water. With the exception of one spring here and one or two towards the north, all the waters were more or less strongly alkaline. Whenever rain collected in the rocky basin of the small arroyos, this water was used in preference to the alkali water of the springs.

The vegetation in a wet season, as was the winter of 1885-6, consisted chiefly of the common alfileria, while in places, especially about old goat corrals, dense growth of *malva* had sprung up. Throughout the entire length of the island, there grows in places a small white sagebrush with yellow blossoms. This sagebrush, together with the bark of the cypress trees, serves

in dry years as food for the goats, who numbered, I should judge, about two thousand. In the large cypress grove I saw scarcely a tree that did not bear the marks of their teeth.

The climate of Guadalupe was, at that season of the year, quite cool, in fact the nights were so cold that ice occasionally formed, while frost was of common occurrence. Towards spring the weather moderated considerably, and in the summer, I am told, it is very warm. During many days the north-westerners blew keenly, rising at times almost to a gale. The fogs were very dense, and, driven by high winds, swept over the island, saturating it like rain. Although the rains were at no time very heavy, the sloping and rocky formation of the land allows most of it to flow off, so that a few hours of rain would send small torrents rushing down the arroyos.

The work of preparing specimens was beset with many difficulties. On some days the large blow-flies that swarmed about camp compelled me to prepare and pack in a green condition the specimens as soon as brought in. But more trouble was caused by the dense fogs that often enveloped the camp and so relaxed skins that were not tightly boxed, as to render it necessary to reset them. The accommodations, moreover, were not the most suitable, nor were the comforts of life in excess of the demand for them. As a result of three and a half months' sojourn on the island, the number of known species has been increased by twenty-seven, making a total of thirty-six known to the island.

Four of the straggling species, viz.:—Mountain Bluebird, Varied Thrush, Townsend's Sparrow and Golden-crowned Sparrow, are recorded for the first time from so southern a latitude as Guadalupe Island, while their presence so far off shore, is of scarcely less interest. It is shown quite conclusively that the four species (certainly three of them) that were noted, but not taken in 1875, are not new to science. The very natural supposition to the contrary held by many, served to attract me to the island.

There yet remain unknown the eggs of *Pipilo consobrinus*, *Thryothorus brevicaudus* and *Polyborus lutosus*, and also the young plumage of *Thryothorus brevicaudus*, *Colaptes rufipileus* and *Regulus obscurus*.

From Dr. Palmer's notes I was led to suppose that the breeding season on Guadalupe differed but slightly, if any, from that about the vicinity of San Francisco Bay. Personal observation, however, reveals the fact that on the island it is several months earlier, nesting beginning with many of the species in the winter, as will be seen by the dates accompanying the notes.

The researches made by Mr. L. Belding on the western coast of Lower California, disclose the fact that, as far south as Cerros Island (about 28 deg. north), the birds do not differ from those found near San Diego.

With the exception of a pair of falcons (*F. mexicanus*?), which were not taken, the subjoined is a complete list of the birds which I found inhabiting Guadalupe Island. Nevertheless, there is a strong probability that others have and will find rest in transit, or permanently, as in the case of the cross-bills and nuthatches. Without going into the details of a strict technical treatise, I will endeavor to give a full account of the habits, distribution and numbers of the birds from my personal observation. The measurements have been carefully taken and compared with specimens and published descriptions, those of the more common species being omitted.

The Mexican names of many birds were not known to the inhabitants, and in some instances it was evident that they either confounded the species or applied to a bird the name of some similar bird with which they were familiar. As they may, however, be of use to others who may visit the island, I append the names as they were given me:

- 1.—*Buteo borealis calurus*.—"Aguilia," which more strictly means an eagle.

- 2.—*Tinnunculus sparverius*.—"Gavalancillo."
- 3.—*Polyborus lutosus*.—"Queleli."
- 4.—*Speotyto cunicularia hypogaea*.—"Lechuza."
- 5.—*Colaptes rufipileus*.—"Carpentero." This name is applied to several of the woodpeckers in California, particularly *Melanerpes formicivorus bairdi*.
- 6.—*Micropus melanoleucus*.—"Golondrina." Also applied to swallows in Lower California.
- 7.—*Trochilus anna*.—"Chuparro." Humming birds generally.
- 8.—*Carpodacus amplus*.—"Gorrion." Pronounced "Burrion," as it is spelled in B. B. & R. Hist. N. Am. Birds. In California *C. frontalis rhodocolpus* is also known by this name.
- 9.—*Junco insularis*.—"Gorrion azul."
- 10.—*Oroscoptes montanus*.—"Sinsontle."
- 11.—*Salpinctes guadeloupensis*.—"Saltapared."
- 12.—*Regulus obscurus*.—"Canaria."
- 13.—*Merula migratoria propinqua*.—"Silguero."

To Mr. H. W. Henshaw, Mr. W. O. Emerson and the authorities of the U. S. National Museum, I am much indebted for the use of specimens with which to compare my own. I also wish to express my thanks to Mr. L. Belding for valuable information and suggestion, and to Capt. L. W. Johnston for his many kind offices during the two voyages which I have made with him. To Mr. John Lehr, the island agent, my thanks are due for his valuable aid during my stay.

The nomenclature and order of the A. O. U. checklist has been followed in the preparation of this paper.

1. *Larus occidentalis*.

WESTERN GULL.—A few single birds were seen off shore alighting on rocks which at high tide were entirely covered. I was told that the gulls had formerly bred in considerable numbers at the southern end of the island, where they were

not so frequently molested by the "Quelelis." The latter, said my informant, had often been seen in the act of robbing the gulls of their eggs. The birds can undoubtedly nest at the present time on any other portion of the shore, especially the northern, where they would be comparatively free from this source of danger. Had more time been at disposal, a trip of a few days along shore might have resulted in the discovery of a breeding colony, although the month of April was rather early to look for gull's eggs.

Specimens in both adult and immature plumage in numbers were noticed about the island, but after getting well out to sea on the return voyage, the schooner was accompanied by a few adult birds only. On approaching the Californian coast, these were joined by a number of others, accompanied by a few birds of immature plumage. Apparently the younger birds are not partial to long flights at sea, with the chances of encountering heavy weather, and therefore prefer to follow the coast-line. If such be the case, the immature birds of Guadalupe may have been reared there, and were loath to put to sea in pursuit of vessels.

2. *Puffinus gavia*.

BLACK-VENTED SHEARWATER.—A decayed specimen, found on top of the island in April, has kindly been identified by Dr. Cooper as this species. One stormy night in January, I heard a bird, as he flew past camp, making a peculiar rasping squawk, and although I subsequently heard the same sound on numerous occasions, more particularly when encamped at a lower altitude, I was yet unable to detect the author of it. My Mexican companion said the bird that made the sound was a "Cuapo," common in Mexico; he also drew in explanation the outline of the bill of some rapacious bird; such information is, of course, extremely unreliable.

Since then I have not found any one who knows of a bird by the name "Cuapo." I was inclined to assign the sounds

to sea-birds, which hypothesis was strengthened by my hearing a far greater number of these night-fliers along the beach than on the top of the island, where the dead one was found. In the afternoon on which I left the island, large flocks of Shearwaters were seen a few miles from shore, all of which were on the wing, not much above the waves. Some or all may have been of this species. As the schooner neared Los Coronados Islands (about twenty miles southwest of San Diego), large flocks were seen on the water but rose long before the boat reached them.

3. *Oceanodroma leucorhoa*.

LEACH'S PETREL.—In the latter part of January, I was encamped for a few days upon a narrow shelf of rock below the top of a steep hillside, which formed a quiet lee where some slight protection could be had against the gale. No ornithological work was possible, and nothing could be done for the three days of the storm's continuance but to hug the camp fire. At midnight of the last day, my companion awakened me to announce that some "little owls" were flying about. Every few minutes a bird would pass the small circle of light or hover for an instant in the glow above the fire, while from the enveloping darkness their calls and replies could be clearly heard. There seemed to be four or five close by, but so quick were they in their movements, with flight as erratic as that of a bat, that I found it impossible to shoot them. The next night, I set a steel trap, but the bait, consisting of a Junco, remained untouched. The birds came about my camp only on the darkest nights or, if any were flying during moonlight, they were entirely silent. After the setting of the moon, however, even though as late as four o'clock in the morning, they would make their appearance with their peculiar call. The note I find hard to describe; perhaps I may best characterize it by saying that they seemed to call hurriedly, "*here's-a-letter*," "*here's-a-letter*," and then from the dark-

ness came the reply from another that I supposed to be at rest, "*for yóu,*" "*for yóu.*"

Toward the north I often found wings or other fragments of a petrel, and sometimes the entire body with the exception of the head. Of several dozen picked up from the ground but one entire bird was found. Scores of these bodies were found, some of them partially eaten. My Mexican said that this wholesale slaughter was the work of cats, but only one or two of these animals were seen, while decapitated petrels were lying about on all sides.

There were many small holes in the moist hillside opening under boulders and fallen branches. Digging into these holes for a distance of from one to three feet, my search was rewarded by the discovery of petrels and fresh eggs. During the greater part of two days I dug into about eighty burrows, in most of which a single bird was found. In some cases a single egg, never more, laid upon a few pine needles in an enlarged chamber at the extremity of the burrow was disclosed to view on removing the bird. The birds seemed dazed when brought to light, and walked or fluttered helplessly along the ground for a few feet until they sufficiently recovered from their fright to make use of their wings. When tossed into the air they descended lightly and made their way among the tree-trunks and wind-falls, dodging limbs and branches with a quick, bat-like motion. I do not know whether they flew out to sea or found concealment until nightfall, but the latter course seems the more probable.

Seldom did a bird make a sound when seized, but occasionally a cry like that of a bird in distress would escape them. One individual, however, while being unearthed, kept up the peculiar night-call which had so puzzled me about the camp-fire.

Their favorite breeding-ground was on the pine ridge, but nests were found as far south as the small cypress grove. It was very difficult to secure clean specimens since, upon

being caught, they invariably vomited and purged a reddish, thin, oily fluid of an extremely strong odor. The single egg which they lay is held against the abdomen of the sitting bird. It is shaped much like a pigeon's egg, white in color, while one end is wreathed with a fine spattering of minute dots of reddish brown and pale lavender.

The average measurements of fifty eggs taken March 4th and 5th, is 35.7 x 27 mm. The largest eggs measure 37.5 x 27.5; 38 x 27.5; 37 x 28 mm., and the smallest 31.5 x 26; 32.5 x 25.5; ; 33 x 27 mm.

DIMENSIONS OF SPECIMENS.

Collector's No.	Sex and age.	Wing.	Tail feath'rs	Depth of fork.	Exposed culmen.	Tarsus.	Middle toe and claw.
		mm.	mm.	mm.	mm.	mm.	mm.
2555	♂ ad.	155	85	25	17	25	29
2556	♂ ad.	162	92	28	17	23	29
2558	♂ ad.	158	87	23	16	23	28
2559	♂ ad.	161	90	30	16	25	28
2560	♂ ad.	162	93	25	15.5	25	28
2561	♂ ad.	160	89	32	17	24	28
2563	♂ ad.	166	95	—	17	25	29.5
2564	♂ ad.	168	94	32	17	23	30
2566	♂ ad.	162	92	26	16.5	24	29
2567	♂ ad.	166	97	34	17	24	30
2568	♂ ad.	160	92	—	15.5	22.5	28
2557	♀ ad.	171	99	35	16	24	28
2562	♀ ad.	167	97	30	16	22	29
2565	♀ ad.	159	96	35	17	26	30

No. 11,164 in the collection of the Cal. Academy of Sciences, from Atlantic Ocean, measures—Tail, 94 mm.; depth of fork, 18 mm.; culmen, 16 mm.; tarsus, 22.5 mm.; middle toe and claw, 24.5 mm.

No. 11,165 in the collection of the Cal. Academy of Sciences, from Atlantic Ocean, measures—Tail, 92 mm.; depth of fork, 18 mm.; culmen, 16 mm.; tarsus, 22 mm.; middle toe and claw, 25 mm.

There is indicated in the longer tail, greater depth of fork and longer middle toe which is constant in the Guadalupe example, a Pacific or at least a Guadalupe Island form of *Oceanodroma*, differing mainly in these respects from *O. leucorhoa*. But I have not at present sufficient material from the Atlantic Coast to determine this satisfactorily.

4. *Anser albifrons gambeli*.

AMERICAN WHITE-FRONTED GOOSE.—At my first visit on January 14, 1885, I shot a goose, which I have no doubt was of this species. The bird was a solitary individual, found a few hundred yards from the beach, and when shot fell over a cliff and was lost. Although flying well when flushed, it covered but a short distance before alighting. In the vicinity where it was first seen were many signs indicating that the bird had been there for some time, or that a flock had rested there during a migration. The young grass just appearing above the ground furnished sufficient food.

5. *Buteo borealis calurus*.

WESTERN RED-TAIL.—This is a resident species, and is probably the hawk seen by Dr. Palmer, but of which no specimen was obtained. They were not common, not more than three or four being seen during any single day, and probably the same birds were counted over several times in the course of a week. At the time of my departure I estimated their number as about equalling that of the Caracara eagle. They were oftener seen toward the north where the pines offered a high roosting-place. On pleasant days they extended their hunting excursions toward the south, sometimes remaining for days in the vicinity of the small cypress grove, but on the occasion of foggy or rainy weather they disappeared, seeking shelter among the pines, where, perched on branches close to the leeward side of the trunk, they waited storm-bound till hunger or fair weather called them away. Their extreme wariness and the nature of the country prevented me from securing more than a single specimen. This is an adult male, which was taken on the edge of the small cypress grove, January 5.

No nests were seen, but I have no doubt that among the scattered pines these birds hatch and rear their young.

DIMENSIONS OF SPECIMEN COLLECTED.

Collector's No.	Sex and age.	Wing.	Tail-feathers.	Bill from nostril	Tarsus.	Middle toe
2403	♂ ad.	mm. 38 ¹ / ₄	mm. 204	mm. 23	mm. 70	mm. 48

Iris, dark brown. Cere, commissure and toes, chrome yellow. Length, 517 mm. Extent, 1249.5 mm.

6. *Falco sparverius*.

AMERICAN SPARROW-HAWK.—During the two days spent on the island in January, 1885, I saw a single pair of these birds, but only succeeded in securing the female. My sojourn during the winter and spring of the following year showed the birds to be a resident species. It was seldom that one could not approach within gun shot, even in open ground, while the bird was sitting perched upon either a boulder or the dead branch of a cypress. They especially frequented the central and higher portions of the island. By the middle of February male and female were seen in company, one pair remaining near some isolated cypress tree, while another pair had evidently taken up their abode in a rocky cliff, the absence of suitable tree-cavities forcing them to adopt some convenient hole in the rocks for a nesting place.

Their means of subsistence, during the time of my observation, consisted of coleoptera, caterpillars and other insects, upon which food they became quite fat. I did not see them in pursuit of small birds, and believe it is not their custom to molest them, at least while insect food can be obtained.

LIST OF SPECIMENS COLLECTED.

Collector's No.	Sex and age.	Date.	Wing.	Tail feathers.	Bill from nostril.	Tarsus.	Middle toe.
			mm.	mm.	mm.	mm.	mm.
2410	♂	January 21, 1886	188	124	10	31	23
2520	♂ ad	February 15, 1886	188	122	11	34	25
2519	♀ ad	February 15, 1886	195	122	11.5	35	23
1687	♀ ad	January 15, 1885	192	125	11.5	36	24

The feet, cere and ophthalmic region, yellow in all four.

No. 2410.—Moulting. Blue of wings almost unspotted. Gizzard contained beetles only.

No. 2520.—Contained insects.

No. 2519.—Very fat. Gizzard contained caterpillars.

7. *Polyborus lutosus*.

GUADALUPE CARACARA.—In January, 1885, during a two days' excursion about the central part of the island, but four "*Quelelis*" were seen. By 1886 their number had been reduced by more than a score by the island agent, who never missed an opportunity to kill one. Arriving on the island in the summer time, when the birds came to the shallow pools to drink, the agent would lie in wait behind a boulder and pick them off with a rifle. The birds, if missed, heeding not the shot, or, if but slightly wounded, not realizing the danger, remained near, making certain the destruction of all that came to drink at the fatal spring.

During my rambles I frequently came upon the weather-beaten carcasses of "*Quelelis*" lying where they had fallen. In one place, four were found lying dead together.

In regard to their numbers and destructiveness towards the goats running wild there, the facts noticed by Dr. Palmer in 1875, thoroughly substantiated by information given me by sea-captains and seal-hunters, are not apparent at the present time. Dr. Palmer's assistant, Mr. Harry Stewart of San Diego, writes me that he is unable to say how many were on the island at the time he was there, but that they were in great numbers.

Their range extends over the entire island, from beach to summit. I believe that the killing of several goats each week near the central part of the island, attracted almost the entire number of "*Quelelis*" to that vicinity,

Being of an unsuspicious character, they will allow a person to walk directly towards them until within shooting distance, merely watching the intruder until the distance becomes less than agreeable. If they happen to be upon the

ground they beat a retreat at an awkward walk or, if necessary, a run, taking wing only as a last resort, and even then flying but a short distance before alighting. Their actions, gait and positions, while on the ground are similar to those of a buzzard. In flight, the light color on the primaries is distinctly shown.

During several consecutive days, a "Queleli" came to my camp, searching for scraps of food. One day I saw him making off, at a walk, from the cook-house, carrying with him a piece of bone from the leg of a goat, and upon which a little raw meat still adhered. With this bone, fully nine inches in length, grasped firmly in his bill, he retired to what he considered a safe distance before commencing his feast.

As far as my observations went, the birds were entirely silent, but the agent informed me that when perchance a rifle ball carried away a wing or a foot, the unfortunate bird would scream long and loudly. If the wounded creature happened to be in company with others of his kind, he would be immediately attacked and killed. One which was badly wounded attempted to escape by running, with the assistance of his wings. Being overtaken and brought to bay, instead of throwing himself on his back in an attitude of defence, or uttering a cry for quarter, he raised his crest and with an air of defiance, calmly awaited death as became the Eagle of Guadalupe. Weakened by the loss of blood which poured from a wound in his throat, he finally fell forward and died—silent and defiant to the last.

If a goat was killed and not immediately taken to camp, the hunter was almost certain to find upon his return that a "Queleli" (rarely more than one) had taken possession of the carcass.

Their food during the season of caterpillars consists almost entirely of these larvæ, with a slight variation afforded by occasional beetles and crickets. Whenever opportunity offers they are ready to gorge themselves upon

the offal of a slain goat, retiring after the banquet to a convenient tree to await the process of digestion. I have never known of their eating the bodies of their own species, but they do not object to making a meal off the flesh of a fat petrel if fortune casts a dead one in their way.

The goats, I believe, are seldom molested in a time of plenty by the few Eagles that remain, although during a scarcity of food, it is not unlikely that they would attack a kid or possibly even a full grown animal. By the latter part of April, the birds had apparently not paired, and I believe the eggs are not laid until the latter part of May or June.

The Mexicans said that a cliff was always chosen for a nesting place, thus making their nests difficult to find and still more difficult of access. This being the case, I fear the eggs will long remain unknown.

LIST OF SPECIMENS.

Collector's No.	Sex and age.	Date.	Wing.	Tail.	Culmen from cere.	Tarsus	Middle toe.
			mm.	mm.	mm.	mm.	mm.
1692	♂ <i>ad.</i>	Jan. 15, 1885	402	260	32	92	51
2387	♂ <i>ad.</i>	Jan. 4, 1886	390	260	33	84	53
2577	♂ <i>ad.</i>	March 16, 1886	399	260	33	88	53
1691	<i>ad.</i>	Jan. 15, 1885	418	276	33	89	53
1699	<i>ad.</i>	Jan. 15, 1885	405	268	33	89	56
2408	♀ <i>ad.</i>	Jan. 8, 1886	412	266	33	90	50
2504	<i>ad.</i>	Feb. 16, 1886	418	285	33	84	54
2581	<i>ad.</i>	March 22, 1886	414	273	33	90	55
2409	<i>im.</i>	Jan. 18, 1886	405	260	32	92	54
2576	♂ <i>im.</i>	March 16, 1886	408	257	32	88	54

Remarks.—The adult birds have light-brown eyes. Bill, pale bluish white. Cere, lores, feet and legs, chrome yellow. The yellow of lores assumes a salmon color soon after death, but this disappears for a short time if a finger is pressed upon the spot, resuming again the salmon color as the skin dries. Immature birds have dark-brown eyes. Bill, light bluish. Lores, not chrome yellow. Feet and legs, nearly "Naples yellow" in color. All of the so-called immature birds which I have seen (five in number) have been in worn or ragged plumage.

No. 1692—Length, 609 mm. One foot missing from below the knee; an old wound.

No. 2387—Length, 603 mm. Extent, 1260.5 mm. Contained feathers and pieces of goat meat.

No. 1691—Length, 631 mm. Extent, 1308 mm.

No. 2581—Fat. Ovaries slightly enlarged. Stomach contained a foot and some feathers of a petrel.

No. 2409—Ovaries very small.

8. *Speotyto cunicularia hypogæa*.

BURROWING OWL.—This species may or may not be one of the two kinds of "*Strigidæ*" mentioned in the "Ornithology of Guadeloupe Island," but of which no specimens have ever been taken. It was the only species which I met with, and I have no positive evidence of there being any other owls on the island while I was there, although whenever a favorable night offered itself, I seized the opportunity to watch for nocturnal birds.

The Mexicans said that there was a large Owl ("Teco-lote"), which they had occasionally heard hooting at night, but that it was very rare.

From Dr. Palmer's assistant, I learned that one of the owls which was known to be on the island was a Horned Owl (*Bubo*).

A single pair of Ground Owls were the only ones of this species met with. They frequented the open ground on the central part of the island near the alkali pools, appearing only after dusk. The notes made at the time will perhaps give the best idea of the bird's habits as far as these were observed. The third night on which I had watched for them was unusually calm and quite chilly. The lingering twilight rendered objects still visible through the approaching gloom. Nearing a large boulder beside which I purposed to take my stand for that evening, I suddenly started up one of the very birds of which I was in search. Frightened by my approach, she rose a short distance in front of me, and instead of alighting on a rock, as I expected, and thus keeping me within sight, she dropped behind it, dis-

appearing instantly. As I cautiously circled around the spot, I noticed her head peering out from one side of the boulder, and at once fired. After smoothing out her plumage and placing her upon a rock, I stationed myself against the boulder and gun in hand watched for the male whose call I had heard issuing from the darkness. Soon the call was repeated nearer than before, and the form of an owl rose dark above the horizon not twenty feet away. He discovered my presence just as I threw my gun into position, and giving a cry of alarm, swerved off. He was, however, too late and was soon placed upon the rock beside his mate. They were both very fat, one was gorged with caterpillars, the other contained a single small beetle.

LIST OF SPECIMENS COLLECTED.

Collector's number.	Sex and age.	Date.
2453	♂ <i>ad.</i>	Feb. 2, 1886.
2452	♀ <i>ad.</i>	Feb. 2, 1886.

Iris and feet yellow.

9. *Colaptes rufipileus*.

GUADALUPE FLICKER.—Comparatively speaking, this bird was not rare in the restricted area of the large cypress grove, but apart from this locality less than a dozen were seen. Three specimens were taken among some palms within a short distance from the beach on the eastern side of the island. One only was heard among the pines at the northern portion, and in the vicinity of the large palm grove on the northwestern slope they were occasionally seen.

Of all the species of this family I have ever met with, none have been so tame and unsuspicious or less frightened by the report of a gun. In January I witnessed a peculiar habit not before noticed, I believe, in birds of this genus. A pair of Flickers were perched facing each other upon a

gnarled root about three feet from the ground, their heads within a foot of each other. Suddenly the male, who had been sitting motionless before the female, began a somewhat grotesque performance, which consisted in a rapid bobbing of his head. In this he was immediately followed by the female. This spasmodic bobbing and bowing they repeated alternately a few times, when both stopped as suddenly as they had commenced. After an interval of a few seconds the male began again and was joined by the female. The movement resembled more an upward jerk of the head than a bow.

Approaching on my hands and knees to get a closer view, I could hear a low chuckling sound while these strange actions were in progress. What the outcome of this love-making—for such I regarded it—would have been I did not ascertain. The fear of losing the specimens—almost the first I had seen—prompted me to fire. The first shot brought down the female. At the report away flew the male, followed by another male, which, unseen by me, had been quite near, on the ground. They returned while I was still holding the female, and thus gave me an opportunity of securing them both. Their evident lack of timidity permitted me to draw near enough to plainly distinguish the characteristic bright red cheek-patches. In February I saw a repetition of the action above noted, the birds being in a cypress tree above me. They were very tame, especially the female, who came quite near as I lay upon the ground, whistling “quíit-tu,” “quíit-tu,” and watching her puzzled actions. In a half-dead cypress this pair had partially pecked a cavity for a nest.

In addition to the familiar scythe-whetting notes they have the peculiar “wake-up” call and its rapid prelude of monosyllables. By imitating this call I decoyed a distant female to within short range, the bird coming through the thickest of the cypress grove, stopping at short intervals to call and listen for a reply.

The food of this species during a portion of the year consists largely of smooth-skinned caterpillars, besides numerous beetles and ants; the latter are always obtainable and growing to a large size figure as an important item of their diet. The scarcity of decayed trees with the exception of fallen ones, necessitates either work upon seasoned wood or the resort to dead palm stumps. The nests will therefore be found at heights varying from three to fifteen feet.

By March 16, the birds were invariably found in pairs, and my wish to secure a setting of eggs before departing seemed in a fair way of being fulfilled. Strolling among the cypress on the 27th of March, I found four trees upon which the birds were at work or had been recently, and in such cases the birds themselves were always to be found in the immediate vicinity. Passing a half-dead tree I heard the sounding taps of a woodpecker at work, and as I neared the spot, the slight noise which I made as I carefully picked my way over the rock-strewn ground caused a handsome male bird to suddenly appear at an opening about four feet high. With a foot grasping either side of the entrance he gazed upon the intruder. Having comprehended the situation, he flew to another tree, where he quietly awaited my inspection and departure. The hole was then down about fifteen inches. By April 7, it had reached a depth of about twenty inches and contained six fresh eggs, upon which the female was then sitting. As no description has hitherto appeared of the eggs of this species it may be well to present here the measurements of this set. (No. 803, author's oölogical collection.) They correspond exactly, both in color and general shape, with scores of other eggs of this genus, and offer the following measurements in millimeters: 28x22; 28x22; 28x22.5; 29x22; 29.5x22; 29.5x22.

A comparison of the measurements of the specimens taken on Guadalupe Island with those of the same genus which I have in my possession may be of interest.

Although on the one hand the collection from the island

is probably the largest that has been obtained, yet on the other hand my series of the other form is not as full as could be desired, and furthermore I possess neither specimen nor description of the recently added variety *saturator*. In the late revision of the nomenclature of North American birds, the variety *hybridus* was rejected. It seemed improbable that the wide departures from typical examples of either *auratus* or *cafer* could be attributed to hybridism. This fact impressed itself more and more on my mind by the ever-increasing occurrence of the so-called Hybrid Flicker. Specimens of this genus, however, are found which no stretch of the imagination can reconcile with any existing description of *auratus*, *cafer* or *rufipileus*, and I have no doubt that similar departures may be found in specimens of *chrysoides* and *saturator*.

DIMENSIONS OF ♂ *ad.* C. RUFIPILEUS.

Collector's No.	Date. 1886.	Wing.	Tail.	Tail-feathers	Bill from nostril.
		mm.	mm.	mm.	mm.
2405	Jan. 8.	146	127	110	34
2406	Jan. 8.	149	123	112	32
2460	Feb. 2.	148	120	116	33
2509	Feb. 12.	145	126	116	32
2511	Feb. 12.	147	124	111	34
2514	Feb. 12.	150	122	108	30
2521	Feb. 15.	152	129	109	36.5
2522	Feb. 15.	145	125	108	34
2524	Feb. 19.	147	123	108	35
2525	Feb. 19.	146	128	114	36
Average..	.....	144.5	124.7	111.2	33.5

No. 2406.—Length 312 mm. Extent, 499 mm.

No. 2460.—Stomach gorged with large black ants.

DIMENSION OF ♀ *ad.* C. RUFIPILEUS.

Collector's No.	Date. 1886.	Wing.	Tail.	Tail-feathers.	Bill from nostril.
		mm.	mm.	mm.	mm.
2380	Jan. 2.	149	126	111	29
2381	Jan. 4.	146	120	108	32.5
2407	Jan. 8.	143	119	104	33
2526	Jan. 23.	148	123	108	36
2427	Jan. 23.	148	125	110	31
2512	Feb. 12.	154	129	115	34
2513	Feb. 12.	148	124	109	32
2515	Feb. 12.	141	117	104	34
2516	Feb. 12.	146	120	107	33
2527	Feb. 19.	143	125	109	30
Average...	.....	146.6	122.8	108.5	32.4

No. 2380.—Length 328.8 mm. Extent 487 mm. Iris dark reddish-brown.

No. 2381.—Length 312 mm. Extent 476 mm.

No. 2427.—Ovaries small.

COLAPTES CAFER ♀ *ad.*

Collector's No.	Collector's Name.	Locality.	Date.	Bill from nostril.
				mm.
169	W. E. Bryant.	Berkeley, Cal.	Jan. 22, 1881.	31
564	" "	Oakland, Cal.	Feb. 25, 1882.	32
599	" "	Mt. Diablo, Cal.	Apr. 1, 1882.	32.5
772	" "	Oakland, Cal.	Feb. 22, 1883.	30
1065	D. S. Bryant.	Mt. Diablo, Cal.	May 5, 1878.	31
1095	" "	Oakland, Cal.	Mar. 27, 1879.	31
1175	" "	Lafayette, Cal.	Mar. 20, 1883.	30
1742	W. E. Bryant.	Oakland, Cal.	Jan. 25, 1885.	32
1985	" "	" "	Mar. 12, 1885.	31.5
2636	" "	Scott Mt. Cal.	May 28, 1883.	29
Average...	.....	.....	.....	31

No. 564.—Cheek-patches indistinct.

No. 599.—Tail pinkish; crown, light tawny-brown.

No. 1065.—One outer tail-feather yellow.

No. 1095.—Narrow, red nuchal crescent.

No. 1175.—Forehead brown.

No. 1742.—Crown rufous brown.

No. 2636.—Tail red; one outer feather yellow. Anterior portion of crown tawny-brown. Caught on nest containing seven eggs.

COLAPTES CAFER ♂ ad.

Collector's No.	Collector's Name.	Location.	Date.	Bill from nostril.
980	D. S. Bryant.	Oakland, Cal.	Nov. 18, 1877.	33
1006	D. S. Bryant.	Gilroy, Cal.	Dec. 23, 1877.	34

By an inspection of the preceding tables, it will be seen that the long bill is by no means a constant difference. While the length will *average* greater in *rufipileus*, specimens are found with the bill shorter than the average of *cafer*. The two examples of *cafer* given in comparison with *rufipileus* in the "Ornithology of Guadeloupe Island" were from Washington Territory, and under the present arrangement, I presume would be classed as *saturation*, rather than as "true Mexicanus" (*cafer*).

As yet I have seen no description of the male plumage of the Guadalupe Flicker, but I am informed that one is soon to be published.

Some of the specific characteristics which serve to distinguish this insular species from the continental form, *cafer*, will be briefly noticed.

In the majority of the specimens before me, the characteristic of the more pinkish tinge to the rump and upper tail coverts—especially the latter—seems to hold good. But in some individuals these parts are whiter than will be found in certain specimens of *cafer*. By raising the upper tail coverts and viewing them from the under side, the depth of the coloring may be best determined. This is of a sulphurous tinge in *auratus*.

The bright tawny forehead is usually brighter in the males, and extends farther back on the neck. No specimens of *cafer*, which I have examined, are as richly marked as the most typical examples of *rufipileus*, but individuals of the latter sometimes possess less of the tawny brown than extreme cases among *cafer*.

I have found but two exceptions to the extent of black on the ends of the retrices. One in the case of a female *rufipileus*, in which the black reaches only about 38 mm. from the ends of the feathers, and the other a female *cafer* (formerly *hybridus*) in which the black extends about 57 mm. In typical *rufipileus*, the black covered about 63 mm. of the ends. This I found to be the most constant difference.

The absence in every case of a definite or clearly defined cheek-patch in the females, and also the absence of marginal light spots on the outer web of the exterior retrices in both sexes, will aid in determining this species. These spots, although rarely if ever wanting in typical *cafer* are seldom or never found in *rufipileus*. An apparent exception is found in a male from Guadalupe Island, which has a slight touch of light on the webs.

10. *Micropus melanoleucus*.

WHITE-THROATED SWIFT.—On January 12, a flock of about fifty swifts passed near camp, moving towards the north-east. They flew in every direction, but kept well together, and gradually ascended to a higher altitude. I could not get near enough to distinguish any characteristic markings. They were again seen during a few hours of sunshine on the 15th, but only at a distance.

A storm of wind, rain and dense fog, which had lasted almost without interruption for twelve days, cleared away January 21, and with the welcome and returning sunshine came the swifts. They were flying lower than usual, and occasionally one would chatter as he swept above the tree-tops. The birds were feeding upon a species of slender black fly, with which the air was swarming, and although dispersed for a time by the report of a gun, they soon returned to their feast. As late as April, they were still on the island, but only a few at a time were seen, the flock having evidently separated, although not apparently paired off. One calm day, about a dozen birds were seen skimming low over the grass in the manner of swallows. As far as my ob-

servations go, this is something unusual for this species, which usually descends towards the earth only in dull, rainy weather in pursuit of insects driven lower by the humid atmosphere. If the birds were to remain on the island during the summer, they could find an abundance of suitable nesting places in the cliffs, either on the shore or on the side of the table-land where the small cypress grove stands.

LIST OF SPECIMENS.

Collector's number.	Sex and age.	Date.
2411	♀ <i>ad.</i>	Jan. 21, 1886.
2584	♀ <i>ad.</i>	March 26, 1884.

2584.—Ovaries, small.

11. *Trochilus anna*.

ANNA'S HUMMING-BIRD.—This diminutive straggler is no doubt the species seen by Dr. Palmer eleven years ago, but of which he did not succeed in obtaining a specimen. I had been in hopes of finding in this bird a new species of hummer. When the month of March arrived and I had not even caught a glimpse of the bird, although on one or two occasions I had heard it buzz as it went past, my hopes of securing this unidentified species were almost gone, and I fully resolved to shoot on sight the first I saw. Returning one day to my temporary camp from an excursion through the pine belt, both barrels of my gun loaded with round ball ($1\frac{1}{8}$ oz.), I stopped at the foot of a fallen pine, intent upon watching a small band of goats, when suddenly my Mexican companion seized my arm and whispered: "la chuparrosa, señor." Following with my eyes the direction indicated by his outstretched hand, I saw a female hummer upon a dead twig among the pine branches, pluming herself. The feelings I experienced some years ago in meeting a panther, at dusk, in a wooded cañon when my gun was

loaded for quail, were not dissimilar to those which now came over me as I gazed upon the coveted hummer not fifteen feet away, and realized that my gun contained ball.

As I broke open the breech and dropped the provoking loads, the bird rose and hovering about for a few seconds, during which I reloaded and waited in a fever of suspense, she returned to nearly the same spot, when I fired and killed—only an Anna humming-bird. Later I took another female, and afterwards a male, the two latter being found in the small cypress grove. The dearth of honied flowers must at times force them to subsist almost entirely upon insect food. The Mexicans told me that I would find them in great numbers about the palm trees on the northwestern slope; but an expedition to that region resulted in a total failure as far as the object for which it was undertaken was concerned, although the addition of two more straggling species to those already taken compensated me for the fatigue of the journey.

LIST OF SPECIMENS COLLECTED.

Collector's No.	Sex and age.	Date. 1886.
2588	♂ <i>ad.</i>	March 29.
2531	♀ <i>ad.</i>	March 4.
2582	♀ <i>ad.</i>	March 22.

12. *Sturnella magna neglecta*.

WESTERN MEADOW LARK.—A single specimen was seen in the palm grove on the 22d day of March. Although I approached quite near as he sat, loudly singing from the top branch of a fallen pine, I failed to capture him. That unsuccessful shot, one of the “unaccountables” of a hunter-naturalist’s experiences, seemed at the time to be one of the keenest disappointments of my life.

13. *Carpodacus amplus*.

GUADALUPE HOUSE FINCH.—When I arrived at the island

in January, 1885, a few birds, usually in pairs, were found near the settlement. At the door of one of the huts, hanging in a cage, were several of this species, one of which, an adult male, had assumed the yellow plumage which others of this genus take on when confined.

Soon after settling on the top of the island in December, 1885, the "Gorrions" began to collect about the camp, making the mornings joyous with their song.

By our refraining from discharging fire-arms in the immediate vicinity of the camp, they soon became quite tame, hopping about camp during the day, and roosting at night in the thickest cypress, or, during a storm, under the eaves of the palm-thatched huts. On the 24th of January I counted fourteen within a stone's throw of camp, and attracted by the bread crumbs and other food which I threw out for them, their numbers daily increased until on the 1st of February the census of birds in camp, including both sexes, showed a total of twenty-two. Two weeks later they suddenly departed, and were to be found only in pairs about the cypress groves, save in the center of the pine belt, where the blossoms and seeds of the "chick-weed" sometimes attracted a flock of half a dozen, who busied themselves feasting upon this tender food. Nothing, either in their habits or song, differed from *C. frontalis rhodocolpus*.

They are easily entrapped under a box, and it was in this way that the Mexican women at the settlement succeeded in catching, during my stay, as many as two or three dozen, which they ate.

The dissection of specimens showed the food to consist chiefly of seeds from the cypress tree, mingled with green seeds of "chick-weed." Some of those taken near camp had their crops well filled with bits of tallow picked from the body of a goat which had been dressed and hung under a tree.

Two nests were found in cypress trees nearly completed by February 22. A nest and set of five fresh eggs (No. 792,

author's oölogical collection), which in consequence of a heavy storm had been deserted, was taken on the 1st of March. From this date began the nesting season of this species.

The last nest, taken April 7th, contained five eggs, with small embryos in them. In nearly every instance, the birds selected for a nesting place the upper side of a cypress branch in the angle formed by its intersection with the trunk, thus avoiding the storm-shaken foliage. They seemed to show a preference for the leeward side of a tree, where the nest would be protected from prevailing winds. One prudent couple had built in a clump of mistletoe, at a height of twenty feet.

Several pairs built in the tops of palms. The nests were ordinarily not more than ten or fifteen feet from the ground.

The birds make but slight demonstrations while their nest is being removed, uttering only a few notes of protest, or silently witnessing a wrong hitherto unknown to them.

The material used for the outer structure of the nests consisted of the dark, dead stems of weeds, only the finer ones being selected. One nest found in a pine tree, had the foundation and sides made of pine needles, with the invariable lining of goat's hair, black or white being used indiscriminately. The external diameter of the nest is about 130 mm., with a central cavity of about 65 mm.

The eggs, sometimes four in number, but oftener five during the early part of the season, are colored precisely like the average specimens of *C. frontalis rhodocolpus*, the spots being either sparingly applied or entirely wanting. They also resemble them in general shape, but the size serves to distinguish them. The five eggs of set No. 792, measure respectively 22 x 15; 22 x 15.5; 22.5 x 15.5; 23 x 15.5; 23 x 16.5 mm. The length measurement varies from 19.5-24 mm., and the width 15-16.5 mm. The average of thirty-two specimens is 21.3 x 15.5 mm.

In the table of measurements, I have selected from a good

series, those which exhibit extreme size, more or less, as well as average specimens.

DIMENSIONS OF SPECIMENS COLLECTED.

Collector's No.	Sex and age.	Date.	Wing.	Tail-feathers	Bill from nostril.	Depth of bill.	Breadth of bill.	Tarsus.	Middle toe.
			mm.	mm.	mm.	mm.	mm.	mm.	mm.
1682	♂ <i>ad.</i>	Jan. 15, 1885.	83	65	11	12	9	19	18
1688	♂ <i>ad.</i>	Jan. 15, 1885.	81	63	10.5	12	9	20	16
2376	♂ <i>ad.</i>	Jan. 2, 1886.	82	64	10.5	12	9.5	19.5	16
2377	♂ <i>ad.</i>	Jan. 2, 1886.	80	63	11	12	9	19.5	17
2465	♂ <i>ad.</i>	Feb. 16, 1886.	82	62	10.5	11	9	19	16
2469	♂ <i>ad.</i>	Feb. 16, 1886.	83	65	11	11	8.5	19.5	16
2544	♂ <i>ad.</i>	Mar. 4, 1886.	84	63	10	11.5	9	19	15
2545	♂ <i>im.</i>	Mar. 4, 1886.	80	62	11	11	9	19	17
2549	♂ <i>ad.</i>	Mar. 4, 1886.	79	61	10	10	8	18	16
2550	♂ <i>ad.</i>	Mar. 4, 1886.	81	63	11	12	9	19	16
Average....	.....	.....	81.5	63.1	10.6	11.4	8.9	19.1	16.6

No. 2376.—Testes very small. Length 174 mm. Extent 266 mm.

No. 2377.—Length 171 mm. Extent 263 mm.

Collector's No.	Sex and age.	Date.	Wing.	Tail feathers.	Bill from nostril.	Depth of bill.	Breadth of bill.	Tarsus.	Middle toe.
			mm.	mm.	mm.	mm.	mm.	mm.	mm.
1681	♀ <i>ad.</i>	Jan. 15, 1885	82	62	11	11	9	20	17
1686	♀ <i>ad.</i>	Jan. 15, 1885	80	62	10	11	9	19	17
2689	♀ <i>ad.</i>	Jan. 15, 1885	72	62	10	11	9	19	16
2378	♀ <i>ad.</i>	Jan. 2, 1886	79	60.5	10.5	11	8.5	18.5	17
2660	♀ <i>ad.</i>	Feb. 16, 1886	79	63	10	10	9	18	16
2420	♀ <i>ad.</i>	Jan. 23, 1886	78	57	10	11	9	18	16
2472	♀ <i>ad.</i>	Feb. 16, 1886	79	61	10	11	9	19	17
2551	♀ <i>ad.</i>	March 4, 1886	72	59	10.5	12	8.5	19	17
2552	♀ <i>ad.</i>	March 4, 1886	79	59	11	11	9	19	17
2553	♀ <i>ad.</i>	March 4, 1886	79	60	11	11	9	19	16
Average	.....	.....	77.9	60.5	10.4	11	8.9	18.8	16.6

No. 2378.—Ovaries very small. Length, 167.5 mm. Extent, 258 mm.

14. *Loxia curvirostra stricklandi*.

MEXICAN CROSSBILL.—This species, found only through the narrow pine belt, I estimated to number about a score. They remained high up in the pines, flying hurriedly among the tree tops, uttering what seemed to me a frightened note. Occasionally a pair, seldom a single bird, would be seen on the top of a fallen tree, but never upon the ground. The only food which dissection proved them to have been feeding upon, was pine seeds. No nests were found, although several were no doubt being built, if not already completed by the middle of February. A comparison of the island cross-bill with typical examples of *minor* and *stricklandi*, shows it to belong to the latter variety, although the upper mandible is nearly or quite one-third thicker than the lower.

If we assign all Eastern birds to *minor* and Western ones to *stricklandi*, an exception must be made of No. 78,186, which in the Smithsonian Institution is labeled *minor*, although it came from Santa Cruz, California.

“The diversity in general size, size and shape of bill, and color which they present is enough to convince any one that these characters are subject to a wide range of variation and are not dependent, except within broad limits, on geographical considerations. * * * * * It seems obvious that the variations just referred to are either purely individual or dependent on age.”³

In the following tabulated measurements, the length of the exposed culmen is given on account of having been oftener measured, although it is more difficult to determine accurately than the distance from nostril, which is also included. The bill is found curving to the right as often as to the left.

NOTE ³—William Brewster in Auk. Vol. VIII. No. 2. p. 261.

LIST OF SPECIMENS COLLECTED.

Col-lect'r's No.	Sex and age.	Date. 1886.	Wing.	Tail feathers	Ex-posed culmen.	Bill from nostril.	Depth of bill at base.	Tar-sus.	Mid-dle toe & claw.
2474	♂ ad.	Feb. 16.	mm. 93	mm. 54.5	mm. 16	mm. 14	mm. 10	mm. 16.5	mm. 20
2475	♂ ad.	" "	87	51	15	13	9	14	19
2476	♂ ad.	" "	100	60	18	16	11	17	20
2480	♂ im.	" "	88.5	53	15	14	10	14.5	19.5
2481	♂ ad.	" "	88	52.5	17.5	15	10.5	16	19.5
Average...			91.3	52.2	16.3	14.4	10.1	15.6	19.6
2477	♀ ad.	Feb. 16.	87	52	15	13.5	9	14	19
2478	♀ ad.	" "	84	52	16	14	9	14	18
2479	♀ ad.	" "	90	52	16	14.5	10.5	16	22
2554	♀ ad.	March 4.	90	52	17	15	9.5	17	20
Average...			87.7	52	16	14.2	9.5	15.2	19.7

LOXIA CURVIROSTRA STRICKLANDI.

Col-lect'r's No.	Sex and age.	Collector	Locality.	Wing	Tail feathers.	Ex-posed culmen.	Bill from nostril.	Depth of bill at base.	Tar-sus.	Mid-dle toe & claw	Date.
705	♂ ad	C.E.Aiken	White Mts., Ar	mm. 100	mm. 60	mm. 19	mm. 16.5	mm. 11	mm. 18	mm. 21	Sep. 30, '76
....	♂ im	L. Locke.	Olema, Cal.	85	51	15	13	8	14.5	21	.....

The first is in collection of H. W. Henshaw, the second in collection of W. O. Emerson.

15. *Zonotrichia coronata*.

GOLDEN-CROWNED SPARROW.—Three birds of this species were found feeding upon "chick-weed" amongst the pines.

LIST OF SPECIMENS COLLECTED.

Collector's Number.	Sex and age.	Date, 1886.	Remarks.
2502	♀ im.	Feb. 16.	Moulting.
2503	♀ im.	Feb. 16.	
2532	♀ im.	March 4.	

16. *Spizella socialis arizonæ*.

WESTERN CHIPPING SPARROW.—Returning to camp one noon, I heard the song-note of this species, and was fortunate enough to secure it. No others were known to be on the island.

In accordance with the division of *S. socialis* into Eastern and Western forms, this single specimen, taken on Guadalupe Island, would have to be assigned to the variety *arizonæ*, but in point of fact it will not answer to the original description (Coue's Key, 1872, p. 143), wherein no measurements are given. A later description, however (B. B. & R. Hist. N. Am. B., 1874, Vol. II, p. 11), may be made applicable to the case of western birds which I have seen from this State by omitting from the original description: "black frontlet lacking, and no definite ashy superciliary line, the sides of the crown merely lighter brown; bill brown, pale below."

Excepting the bill, which is "brown, pale below," in this instance, the measurements fall within the limitations of *arizonæ*.

DIMENSIONS OF SPECIMENS.

Collector's No.	Sex and age	Date.	Wing.	Tail.	Tail feathers.	Bill from nostril.	Tarsus.	Middle toe and claw.	Length.	Extent.
2394.	♂	Jan. 6, 1886.	mm. 72	mm. 64	mm. 60	mm. 6	mm. 18	mm. 15	mm. 147.5	mm. 231.5

17. *Junco hyemalis oregonus*.

OREGON JUNCO.—One bird, which was quite shy, was taken among the pines on a cold, windy day, during which the tops of the trees and part of the timber belt were at times entirely enveloped by fog. When first seen this bird was being viciously attacked by a resident junco (*insularis*).

DIMENSIONS OF SPECIMEN.

Collector's No.	Sex and age.	Date.	Wing.	Tail feathers.	Bill from nostril.	Tarsus.	Middle toe.
2189	(?) ♂ <i>ad.</i>	Feb. 16, 1886	mm. 71	mm. 62	mm. 7.5	mm. 20	mm. 16

Remarks—The wing and tail are both a trifle shorter than specimens from Oakland (3) and Big Trees, Cal., (1), but no more than might be expected in individual variation.

18. *Junco insularis*.

GUADALUPE JUNCO.—In his notes, Dr. Palmer refers to this species as “the most abundant birds of the island,” etc. According to my observation they rank about third in relative abundance, the rock-wrens and linnets taking precedence. No juncos were found at a lower altitude than the palm grove, and the majority were inhabitants of the pines and large cypress grove. A pair which was evidently mated was taken in the small cypress grove on the 15th of January, 1885. The following year not more than two or three were seen in this locality.

I did not find them noticeably tamer than the linnets, nor so confiding as the rock-wrens. Their food was principally of seeds, a partiality being shown for the green seeds of the “wild lettuce.” Their song was twice heard from the top of tall cypress trees. It resembles somewhat the trill of the chipping sparrow. They also had a sharp chipping note when alarmed. They remained mostly either upon the ground or low down in the branches of trees. The limbs of a fallen pine were a favorite resort at all times, and the ground underneath most used as a nesting-place.

The Blue “Gorriions” mated early—soon after the beginning of the year—and were setting by the 26th of January, regardless of the almost continuous fogs and winds. A nest found March 10 contained four young, hatched but a few days before. It was placed in a depression, flush with

the surface of the ground, and so carefully hidden beneath a covering of brush that it was found with difficulty, even though I was guided by hearing the young "peeping" for food. The parent birds, who were close by, seemed but little alarmed, uttering only an occasional chirp while I searched for their treasure. Six days later the nest was vacant, being probably robbed by a stray cat.

Full fledged young were taken March 16; also a nest with three fresh eggs, which had been found nearly completed on the 10th. The position of the nest was curious and unique, and it was only by seeing the birds at work building that I succeeded in discovering it. A pine tree with a cleft six feet from the ground, or rather two trees with a common trunk, grew near to the edge of a precipice, and in this narrow cleft partially filled with pine needles the juncos had built. By standing on a pile of rocks and branches I could see the eggs lying in the nest, about a foot below where the trees joined. A fluff of cotton pushed down on the end of a stick to cover the nest, protected the eggs from bits of bark and chips, while I enlarged the opening to a sufficient size to admit my hand. While the eggs were being carefully placed in a collecting box, the birds, who had remained interested rather than alarmed witnesses to the spoliation, flew to the tree, and, while the male clung to the bark at the entrance, the female hopped down within and began the removal of the débris which had fallen upon the edge of the nest. This was at length cleared away by repeated trips into the hole, each journey bringing to the opening a bit of wood, which was promptly dropped to the ground. The nest is composed of a few pieces of bark-moss, light-colored dry grass blades, and a tail feather of a petrel, all surrounding a quantity of grass blades, lined within with goat hair. It measures externally about 120 mm. in diameter by 80 mm. in height, with a receptacle 60 mm. in diameter and only 28 mm. in depth.

The three eggs which the nest contained (set No. 797,

author's oölogical collection) were probably a second setting, the ragged appearance of the female's plumage indicating previous cares. In color the eggs are a pale greenish white, marked with fine dots of reddish brown clustered around the larger end. They measure 19.5x15; 20x15.5; 20x16 millimeters.

MEASUREMENTS OF SPECIMENS COLLECTED.

Collector's No.	Sex and age.	Date.	Wing.	Tail feathers.	Bill from nostril.	Depth of bill.	Tarsus.	Middle toe.
			mm.	mm.	mm.	mm.	mm.	mm.
1683	♂ ad.	Jan. 15, 1885.	71	61	9.5	7	20	15
2375	♂ ad.	Jan. 2, 1886.	70	62.5	9.5	6	20	15
2385	♂ ad.	Jan. 4, 1886.	70.5	64	9.5	6.5	20	15.5
2418	♂ ad.	Jan. 23, 1886.	65	57	9.5	6.5	19.5	15.5
2431	♂ ad.	Jan. 26, 1886.	70	60	9.	7	19.5	16
2434	♂ ad.	Jan. 26, 1886.	65	59	9.	6.5	20	14
2442	♂ ad.	Jan. 29, 1886.	68	57	9.5	6.5	19.5	15
2458	♂ ad.	Feb. 4, 1886.	69.5	60.5	10.	6.5	20	15
2537	♂ ad.	March 4, 1886.	68	60	8.5	6.5	19	15
2575	♂ ad.	March 16, 1886.	71	62	10.	7	19	15
		Average.....	68.8	60.3	9.4	6.6	19.6	15.1
1684	♀ ad.	Jan. 15, 1885.	65	56	9.	7	20	15
2432	♀ ad.	Jan. 26, 1886.	64	55	9.	6	20	14.5
2574	♀ ad.	March 16, 1886.	62	54	8.5	6	19	15
		Average.....	63.6	55	8.8	6.3	19.6	14.8

No. 2375.—Testes large; length, 155 mm.; extent, 223 mm.

No. 2385.—Length, 162 mm.; extent, 230 mm.

No. 2431.—Testes very large; mate of No. 2432.

No. 2458.—Testes very large.

No. 2432.—Setting; mate of No. 2431; parents of nest No. 797.

19. *Melospiza lincolni*.

LINCOLN'S SPARROW. — The small cypress grove, on the border of which I had my permanent camp, was my favorite ground for observation and furnished me with many stragglers, among which was a pair of these birds. They were taken on different days from among the brush inclosing

an old goat corral. The slightest noise would drive them into the dense brush, from which they would again appear when all was quiet.

LIST OF SPECIMENS COLLECTED.

Collector's No.	Sex and age.	Date, 1886.	Remarks.
2461	♂ ad.	February 5.	Testes small.
2523	♀ ad.	February 19.	Ovaries small.

20. *Passerella iliaca unalaschensis*.

TOWNSEND'S SPARROW.—One bird was taken among the pines, but so badly cut by the shot that the sex could not be determined. No others were seen.

DATA OF SPECIMEN COLLECTED.

Collector's Number.	Age.	When Collected.
2490	♀ ad.	Feb. 16, 1886.

21. *Pipilo consobrinus*.

GUADALUPE TOWHEE.—The towhees were found only in the large cypress grove. They were easily overlooked unless directly in one's path among the trees. When singing the bird could be readily traced and secured, but in such cases it was always a male. Only two females were seen, and I cannot believe that their number was in any degree equal to that of the males, for otherwise I do not believe it possible that I could have so completely overlooked them, even though they might have been setting. I was about the grove at all hours of the day, camped there, and was astir at break of dawn, even before the male towhee had mounted his throne on the topmost branch of a cypress and had sounded his morning trill. This song closely resembles that of *P. maculatus megalonyx*, but has one important

variation which was almost invariably given, and which I have never heard from *megalonyx*. This consists in a single quick note, somewhat like a bluebird's, given immediately before the trill, as though it was the click or chuck of the machinery that released the sound which followed. At a distance, when the trill could be distinctly heard, the single quick chuck would pass unnoticed. When I first heard this combination it occurred to me that a bluebird was in the same tree or near by, but closer observation proved the Towhee to be the sole author of it.

The only food upon which they fed consisted of insects. A young bird in company with the adult pair was found in a fallen cypress top, but no eggs of this species were taken.

Ch.—Young (first plumage). Above rusty olive brown, darker on sides of head. Feathers of interscapular region black, edged, more broadly on the outer web, with pale brown. Underparts yellowish brown, darkest on throat, grading into white on the abdomen and to light reddish brown on side; the feather streaked with black. Sides of chin, black, leaving a light line of about the same width between. White markings on wings and visible edges of greater wing coverts narrowly edged with rusty brown. Eyes muddy brown.

(No. 2585. Author's collection, Guadalupe Island, March 26, 1886.)

Wing, 80 mm; Tail feathers, 71 mm.; Bill from nostril, 7.5 mm.; Tarsus, 23 mm.; middle toe, 20 mm.; hind claw, 12 mm.

It much resembles on the back the young plumage of the same age of *P. maculatus oregonus* (No. 983. Author's collection, Wilbur, Or., June 20, 1883), but the latter is darker on sides of neck, and has the feathers of sides and crissum rich reddish-brown.

The underparts correspond closely to the young of *P. maculatus megalonyx* (No. 2298, author's collection, Oakland, Cal., June 3, 1885), which is somewhat younger. I believe

if they were of the same age it would be impossible to separate them.

LIST OF SPECIMENS COLLECTED.

Collector's No.	Sex and age	When collected, 1886	Wing	Tail feathers	Tail	Bill from nostril	Depth of bill	Breadth of bill	Tarsus	Middle toe	Hind claw
			mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
2419	♂ ad.	Jan. 23	80	86	97	9	9	7	26	18	13
2459	♂ ad.	Feb. 2	78	81	88	9.5	9	7	26	18	13
2506	♂ ad.	Feb. 12	78	85	93	9	9	7.5	25	19	14
2507	♂ ad.	Feb. 12	80	86	94	9.5	9	7	26	18	12
2508	♂ ad.	Feb. 12	80	88	96	10	9	7	24	19	13
2569	♂ ad.	Mar. 12	79	83	90	9.5	8.5	7	25	19	13
2570	♂ ad.	Mar. 12	79	86	94	9.5	9	7	24	19.5	13
2571	♂ ad.	Mar. 12	80	87	94.5	9.5	9	7	24.5	19.5	13
2580	♂ ad.	Mar. 22	80	87	96	10	9	7	24.5	20	13.5
2587	♂ ad.	Mar. 26	81.5	87	95	10	8.5	6.5	24	19	13
		Av'g...	79.5	85.6	93.7	9.5	8.9	7	24.9	18.9	13
2388	♀ ad.	Jan. 5	74	—	—	9.5	9	6.5	24	18	13
2586	♀ ad.	Mar. 26	75.5	81	90	10	9	7	25.5	19	13
		Av g...	....	.....	.....	.....	.....	.....	...	....	....

No. 2419.—Testes large. Iris orange, tinged with carmine around pupil.

No. 2459.—Iris orange, tinged with carmine.

No. 2507.—Iris carmine.

No. 2569.—Iris carmine.

No. 2388.—Iris orange.

22. *Ampelis cedrorum*.

CEDAR WAXWING.—Christmas morning was the brightest and fairest I enjoyed during more than one hundred days of my sojourn on the island. Taking a stroll through the small cypress grove in search of birds not before met with, I was rewarded by seeing what I supposed to be one of this species, but was unable to capture it. Nothing was seen or heard of it again for more than a month, until one pleasant afternoon, as I was engaged in preparing specimens in the tent, I heard the notes of the Cedar Bird close by, and

going outside, was just in time to get a flying shot at the retreating bird—but missed it. Those who have had a similar experience can imagine my feelings when that bird disappeared. I knew, beyond any reasonable doubt, that it was *A. cedrorum*, yet the lack of any positive evidence of the fact, left me brooding over my disappointment for the next two hours. The unexpected reappearance of the bird, however, quickly dispelled the gloom. This time I took all possible precaution, and succeeded in making this handsome addition to my collection of Guadalupe stragglers.

DATA OF SPECIMEN COLLECTED.

Collector's Number.	Sex and age.	Date.
2437	♂ im.	Jan. 28, 1886.

Remarks—No wax tips.

23. *Lanius ludovicianus excubitorides*.

WHITE-RUMPED SHRIKE.—Two specimens of these butcher-birds were seen on the central part of the island. Both were heard singing in low, liquid tones, quite pleasing to the ear. They were very shy, although to a less degree than birds of the same species which were met with in 1885 on Cerros Island, Lower California.

Considering the abundance of larvæ, coleopterous insects and occasional grasshoppers, one would suppose that the "mênu" of the Shrike left nothing for her to desire, but on dissecting a specimen, I found amongst the caterpillars, which the distended gizzard contained, a tiny golden foot of Guadalupe's sweetest songster, the Dusky Kinglet.

In color this bird is much lighter than the same species from Oakland, Cal., and more closely resembles specimens from Tulare, Cal., and Tucson, A. T.

DATA OF SPECIMEN COLLECTED.

Collector's Number.	Sex and age.	When Collected.
2370	♀ <i>ad.</i>	December 29, 1885.

24. *Dendroica auduboni*.

AUDUBON'S WARBLER.—The only ones seen, two in number, were taken on stormy days in the small cypress grove.

LIST OF SPECIMENS COLLECTED.

Collector's Number.	Sex.	Date.
2368	♂	December 28, 1885.
2404	♂	January 12, 1886.

25. *Anthus pensilvanicus*.

AMERICAN PIPIT.—On the evening of February 2, while going to the alkali pools to watch for owls, I heard faintly the note of a Titlark. The evening was very calm, the sun, just set, cast a beautiful afterglow about the sky; there was just light enough remaining to enable me to distinguish the birds working their way among the rocks. That I might make sure of at least a single specimen for identification, I fired at the one nearest me. The flock, about twenty-five in number, at once rose and circled past out of range, and I saw them no more.

DATA OF SPECIMEN COLLECTED.

Collector's No.	Sex.	Date.
2451	♂ (?)	February 2, 1886.

26. *Oroscoptes montanus*.

SAGE THRASHER.—In making my rounds of the small cypress grove on a cold, cloudy and windy morning in Jan-

uary, I saw and heard fewer birds than ever before or since. It was seldom that I did not take or note something of interest on these short excursions, and on this day I secured a handsome specimen of the Sage Thrasher, which was found among the leafless branches of a fallen tree. No song nor even a single note was heard from him.

DATA OF SPECIMEN COLLECTED.

Collector's No.	Sex and age.	Date.
2400	♂ <i>ad.</i>	January 7, 1886.

Remarks—Iris yellow. Fat. Contained only caterpillars.

27. *Mimus polyglottos*.

MOCKING BIRD.—Two birds, apparently a mated pair, were seen on a fallen pine at the northern edge of the palm grove. First attracted to the place by the delightful song which floated upon the air, I saw one of the birds in the act of pouncing upon something in the grass, in the manner of a shrike. When alarmed they flew higher and higher among the branches of a tall pine, so that only the female was captured. Having never before seen this bird in a wild state, I regretted the act which, in compliance with strict scientific requirements, deprived that sea bound spot of so much sweet music.

SPECIMEN COLLECTED.

Collector's No	Sex and age.	Date.
2579	♀ <i>ad.</i>	March 16, 1886.

Remarks—Iris yellow. Ovaries small.

28. *Salpinctes guadeloupensis*.

GUADALUPE ROCK WREN.—This species, undoubtedly the most common of the birds on the island, was distributed

from the beach to the summit, but was found to be most numerous on the upper and central portions. They were by nature tamer than any birds I ever met with. While retreating, if approached, they would in turn draw quite near to a person who remained perfectly quiet. Sitting down one afternoon upon a log, I saw a Rock Wren come hopping closer and closer to where I was resting, until at length he perched upon my shoe. Then seeing a sandy spot just beyond, he availed himself of the opportunity by taking a dust-bath. So close was he to me that I could have reached him with my foot, yet constantly in motion, searching here and there among the rocks for food, he seemed entirely unconscious of my presence. Even when standing they are seldom quiet, a nervous twitch of the tail or toss of the head bearing witness to the incessant activity so characteristic of these little creatures.

Seldom silent, they have, in addition to their ringing call, a considerable variety of song. I became accustomed to the variations of four or five different birds, and noticed that each had a song peculiar to himself but differing from the songs of his fellows. One little wren near camp was in the habit of beginning his song each morning at about half-past six, never varying five minutes from his self-appointed time. They are usually seen on the ground or upon a rock or stump. One remarkably foggy morning, I noticed one sitting on the top of a sage-bush, while on fine days, I have seen them mounted to the height of twenty feet on a dry cypress twig, singing their cheerful song.

Their food consisted mainly of caterpillars and beetles. I watched one pick to pieces and devour successively three small Carabide beetles.

The weather does not seem to be taken into consideration by any of the resident species. The rock-wrens are the first to begin nesting, and endeavor to conduct their domestic affairs through the stormiest times, though not always with success. Many abandoned nests were found,

some with and some without eggs, deserted, probably, on account of long continued wet weather. The location of the nest, however, plays an all-important part in the success or failure of the first builders. A few birds began the construction of their nests in December, and one had her work nearly completed on the 25th of December, 1885. Four fresh eggs were found in it on January 17th. The breeding season, strictly speaking, extends from the middle of January through the month of March.

Nests were found in cavities of immense boulders, under rocks, in fallen and decayed trunks of cypress trees, the latter location being apparently a favorite one. But wherever the nests were located the passages leading to them were, with one or two exceptions, paved with flat pebbles ranging in size from a Lima bean to a half dollar. Fully a quart of these pebbles were removed from the entrance to a nest built in a boulder at a height of four feet, where, at some previous time, other birds had evidently built and accumulated their share of the pavement. As a rule scarcely an ordinary handful of stones are used. The nest is built in close conformity to the size and shape of the cavity which it occupies, being usually circular and varying from a shallow bed of fine dry grasses to a nest of the same material measuring 150 mm. in diameter and 60 mm. high. The egg receptacle is from 55 mm. to 70 mm. in diameter, and not more than 30 mm. in depth. A lining of goat hair when obtainable is invariably used. I followed one bird fully an hundred yards from the spot where she had collected some goat hair before the nest was reached.

The eggs are usually four, though sometimes five in number, and resemble both in color and shape those of the common rock-wren (*S. obsoletus*).

Set No. 781 (author's oölogical collection) measures: 17 x 14; 17 x 14.5; 18 x 14.5; 18.5 x 14.5 mm.

Set No. 782 (author's oölogical collection) offers the fol-

lowing measurements in millimeters: 19 x 14; 19 x 14; 19.5 x 14.5; 19.5 x 14.5; 19.5 x 15.

The average size ascertained from a series of fifty-five eggs, is 19 x 14 mm.

The two largest eggs measured 21 x 15 mm. and 20 x 16 mm. respectively; the two smallest, 17 x 14 mm.

Two different stages of the young plumage were taken, descriptions of which are here given:

Ch.—Young. Above similar to adult but *much* darker, especially the head and neck, which lack the speckled markings. Wings and tail as in adult but darker, the bars across middle tail-feathers dull black. The outer half of the pale cinnamon on end of tail-feather finely mottled with dusky. Under parts pale pinkish cinnamon; the entire throat obscured with a faint dusky suffusion. Crissum darker than abdomen and unmarked.

Wing, 67 mm.; tail feathers, 53 mm.; bill from nostril, 12 mm.; tarsus, 19 mm.; middle toe, 13 mm.

(No. 2530—Immature, author's collection. Guadalupe Island, February 19, 1886.)

First Plumage.—Above lighter than the immature specimen and grayer than the adult plumage. Below, including throat, pale sulphurous white, becoming pinkish on sides, and crissum, which is unmarked.

Wing, 57 mm.; tail feather, 34 mm.; bill from nostril, 8.5 mm.; tarsus, 20.5 mm.; middle toe, 14 mm.

(No. 2425—Nestling, author's collection. Guadalupe Island, January 23, 1886.)

By the table of measurements it will be seen that the bills of specimens (collected eleven years after the species was discovered) average about 15.5 mm.; while those taken in 1875 I find to average fully a millimeter less. A decade hence it will be interesting to know whether this increasing development has still continued.

LIST OF SPECIMENS COLLECTED.

Collector's No.	Sex and age.	Date, 1886.	Wing.	Tail feathers.	Tail.	Bill from nostril.	Tarsus.	Middle toe.
			mm.	mm.	mm.	mm.	mm.	mm.
2395	♂ ad.	January 6.	65	48	52	15	21	14
2397	♂ ad.	January 6.	66.5	49	54	15.5	21	13
2398	♂ ad.	January 6.	67	48.5	56	17	21	14
2422	♂ ad.	January 23	69	52	—	16	20	13
2423	♂ ad.	January 23.	68	49	54	16	22.5	14
2443	♂ ad.	January 29.	68	51	57	15	22	14
2444	♂ ad.	January 29.	68	52	57	16	22	14
2445	♂ ad.	January 29.	66	48	54	16	21	14.5
2534	♂ ad.	March 4.	71.5	53	58.5	17	22	14.5
2630	♂ ad.	January 29.	68	52	57	15	21	15
		Average..	67.7	50.2	55.5	15.8	21.3	14
2396	♀ ad.	January 6.	66	50	55	16.5	21	14
2446	♀ ad.	January 29.	64	45	50	17	21.5	15
2449	♀ ad.	January 29.	63	46	54	15	21	13
2450	♀ ad.	January 29.	64	47	53.5	14	20	13
		Average..	64.2	47	53.1	15.6	20.8	13.7

No. 2534.—Ferruginous shade on breast and abdomen.

No. 2396.—Feathers worn off breast from setting. Length, 152 mm.; extent, 217 mm.

No. 2446.—Contained four very large ova.

29. *Thryothorus brevicaudus*.

GUADALUPE WREN. — This rare local species has become much restricted in distribution and perhaps in number since Dr. Palmer obtained the only two known specimens in 1875. I am informed that no collecting was done at that time among the pines on the northern portion of the island, in which place alone was I able to discover any trace of this species; and as no collecting was done by Dr. Palmer among the palms (an unlikely place for the birds to be found), I infer that the two original specimens must have been found toward the central portion of the island.

The birds were timid rather than shy, being alarmed by the crushing of dry branches as I worked my way amidst the dense windfalls of pines, where they were found, they

fled into the thickest parts. When all was quiet they would cautiously approach until within a few feet of me, seemingly prompted by curiosity. Fearing the complete extermination of a species so restricted in distribution, I refrained from taking more specimens. All that I secured were taken within an area of sixty by three hundred feet, nor were any seen elsewhere. A frightened female uttered a few "twit" "twits" of alarm, but with this exception they were utterly silent.

A careful and protracted search during the greater part of two days, with the aid of my Mexican companion, failed to discover the whereabouts of a nest, the eggs of which remain unknown.

LIST OF SPECIMENS COLLECTED.

Collector's No.	Sex and age.	Date, 1886.	Wing.	Tail feathers.	Tail.	Exposed culmen.	Bill from nostril.	Tarsus.	Middle toe.
			mm.	mm.	mm.	mm.	mm.	mm.	mm.
2483	♂ ad.	Feb. 16	48	44	48	17.5	12	17	12
2484	(?) ♂ ad.	" "	49	44	50	17	12	18	12
2486	♂ ad.	" "	48	43	47.5	17	12	17	12.5
2487	♂ ad.	" "	48	45	47	17	12	18	12
		Av'g..	48.2	44	48 1	17.1	12	17.5	12.1
2482	♀ ad.	Feb 16.	47	43	45	16	11	18	11
2485	♀ ad.	" "	47	42	47	16	11	17.5	11.5
2488	♀ ad.	" "	49	43	47	17	11.5	17.5	12
		Av'g..	47.6	42.6	46.3	16.3	11.1	17.6	11.5

No. 2483.—Contained insects and two pine seeds. Length, 131mm. Extent, 165 mm.

No. 2484.—Sex not determined.

No. 2482.—Ovaries large. Eyes, dark brown. Contained insects.

No. 2485.—Ovaries small.

No. 2488.—Ovaries large.

30. *Sitta canadensis*.

RED-BREASTED NUTHATCH.—Tolerably common among the

pine timber, and found nowhere else except in the large cypress grove, where two or three were heard.

By the 10th of March several birds had begun their preparations for nesting. Selecting a dead pine stump or branch they worked industriously, striking little resounding taps with their bills. Two unfinished holes were found, one at a height of about forty feet in a slender dead pine, being just commenced, while the other, near the top of a pine stump fifteen feet high, had been cut to a depth of four or five inches, thus rendering necessary the removal of chips. This process was effected by regular stages, the bird bringing a mouthful of debris to the opening, where, entirely visible with the exception of her tail, she clung to the edge of the opening, head downward, until the chips were launched into the air.

Specimens which were taken on January 26 and February 16, do not vary in size from specimens of this species from other localities.

31. *Regulus obscurus*.

DUSKY KINGLET.—Frequenting more numerous the large cypress grove, they are nevertheless found in the smaller grove, and also among the pines. In the former and latter places they are positively known to breed, and there is but little doubt that they also nest in the small grove. They are much tamer than others of this genus found elsewhere, still they do not seek a close acquaintance with a person of hunting proclivities.

In December I found them in full song and as common as in April, although strange as it may seem, it was not until the latter month that any were noticed by Dr. Palmer.

Their song is indescribably sweet and musical, and of wonderful power for so small a bird, commencing with a few low, quick notes, as though the singer were merely trying his voice, then bursting into a full animated warble, it ends in a dissyllabic measure, accented on the first syllable, and usually repeated from three to six times. One remark-

ably fine songster repeated the final dissyllable eight or ten times. Only once did I hear the metallic click, so common with the Oakland birds in winter, but even then it flowed immediately into song.

As early as the middle of February nest-building was in order, the birds selecting the topmost foliage of a cypress, and sometimes the very outer extremity of a horizontal branch.

As the result of many days' diligent search, three nests came under my observation, and these were detected only by watching the birds as they collected building material, or by tracing to its source a peculiar, low song, which the male sometimes sings when close to the nest.

These nests were all found over twenty feet high, and only one could be seen from the ground, and that merely during the intervals when the wind parted the branches. They were placed in the midst of a thick bunch of foliage, and but lightly secured to the twigs. Compact, though not very smooth in structure, they were composed of soft strips of bark intermingled with feathers, bits of moss, fine grass and cocoons. Additional warmth is secured by a quantity either of goat's hair or feathers, and, lastly, a thin lining of goat's hair. Their external measurement is about 70 mm. in height by 90 mm. in diameter, while the internal depth is about 45 mm., and diameter from 35 mm. to 45 mm.. The mouth of the opening is smaller than immediately below.

A nest containing two fresh eggs (set No. 799, author's oölogical collection) was found in the top of a slender cypress twenty-five feet high, March 24. It could not be seen from the ground, but was located by the subdued song of the male bird. As I ascended the tree and approached the nest, the female flew off and joined her mate in a neighboring tree. She made no demonstrations whatever, and was not again seen, while her partner, undisturbed by my intrusion continued to warble his richest song.

In color the eggs are white, with a dense wreath of pale yellowish-brown spots encircling the larger end. In some places, these spots appear to be laid over a pale lavender washing, and in one specimen, these fine, almost indistinct dots extend sparingly over the entire surface. They measure in millimeters 14 x 11 and 15 x 11.

LIST OF SPECIMENS COLLECTED.

Collect- or's No.	Sex and age.	Date, 1886.	Wing	Tail feathers.	Tail.	Bill from nostril.	Tarsus.	Middle toe.	Length.	Extent.
			mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
2371	♂ <i>ad.</i>	Jan. 2	56	44	47	7	19.5	10.5	114	169
2390	♂ <i>ad.</i>	Jan. 6	53	40	—	6.5	18	10	.....	.....
2391	♂ <i>ad.</i>	Jan. 6	53	40	—	6	20	10	111	164
2392	♂ <i>ad.</i>	Jan. 6	55	43	—	6.5	19	10	.....	.....
2399	♂ <i>ad.</i>	Jan. 6	54.5	41.5	—	6	20.5	10	.....	.....
2412	♂ <i>ad.</i>	Jan. 23	54.5	43	—	6	19.5	10.5	.....	.....
2413	♂ <i>ad.</i>	Jan. 23	55	44	—	7	20	10.5	.....	.....
2414	♂ <i>ad.</i>	Jan. 23	56.5	46	49	7.5	19.5	10.5	.....	.....
2441	♂ <i>ad.</i>	Jan. 29	56	44	—	7.5	20	10	.....	.....
2455	♂ <i>ad.</i>	Feb. 2	55	43	—	6.5	19.5	11	.....	.....
		Av'g..	54.8	42.8	—	6.6	19.5	10.3	.....	.....
2373	♀ <i>ad.</i>	Jan. 2	51	38.5	42.5	6	19	10	.....	.....
2439	♀ <i>ad.</i>	Jan. 29	51	40	41	6.5	19	10	.....	.....
2456	♀ <i>ad.</i>	Feb. 2	52	40.5	44.5	6	19.5	10	.....	.....
		Av'g..	51.3	39.6	—	6.1	19.1	10	.....	.....

No. 2371.--Iris dark brown.

No. 2456.--Ovaries small.

The length of bill from nostril of the males taken by Dr. Palmer, all measure 6.3 mm., and the single female has the bill but 5.5 mm., showing a slight increase in length during the past decade. As this measurement can be so accurately taken, I believe the difference is an actual one.

32. *Turdus aonalaschkæ*.

DWARF HERMIT THRUSH.—The strange shyness of the straggling avifauna of Guadalupe Island was well exempli-

fied in the first specimen of this species which I met with. On the 24th of December, I thought I heard the note of a Dwarf Thrush, a sound quite familiar to me during the winter season at Oakland, but could not get a sight at the author of it. The bird was heard for several consecutive mornings in the cypress grove adjoining my camp, but was not seen until the 2d of January. He then succeeded in eluding me and leading me a daily chase until the 7th of January, when he was accommodating enough to call at camp in the evening, announcing his arrival by calling out quickly "chut," "chut." As the sound apparently proceeded from beneath a fallen cypress I worked my way cautiously in that direction, keeping tree trunks between myself and the place. The ground being smoother than where I had previously found him, I was not obliged to look to every footstep, and finally arriving within range, I caught sight of him on the ground. The report of the gun was tremendous in the still evening air, and the result final. I soon had the long-sought prize in hand, beautiful, as freshly killed specimens of *Turdi* always are. Two other specimens were afterwards taken, one in the large palm grove, the other among the cypress. Neither, however, was so difficult to approach as the first.

LIST OF SPECIMENS COLLECTED.

Collector's Number.	Sex and age.	Date, 1883.	Remarks.
2401	♂ <i>ad.</i>	January 7.	Iris dark brown
2436	— <i>ad.</i>	January 23.	
2583	♂ <i>ad.</i>	March 26.	

33. *Merula migratoria propinqua.*

WESTERN ROBIN.—First seen in December. In January three birds were found and taken on the border of the small cypress grove.

LIST OF SPECIMENS.

Collector's Number.	Sex.	Date, 1886.	Remarks.
2382	♀	January 4.	
2386	♀	January 4.	Fat.
.....	—	January 8.	Head only saved.

34. *Hesperocichla nævia*.

VARIED THRUSH.—One bird only was seen on the island among the pine timber.

DATA OF SPECIMEN.

Collector's Number.	Sex and age.	Date.
2533	♀ <i>ad.</i>	March 4, 1886.

Remarks—Gizzard contained larvæ, beetles and one pine seed.

35. *Sialia arctica*.

MOUNTAIN BLUEBIRD.—Three birds of this species were seen on several occasions on the edge of the small cypress grove; a single one being noticed for the last time on the 15th of February.

DATA OF SPECIMEN COLLECTED.

Collector's Number.	Sex and age.	Date.
2369	♂ <i>ad.</i>	December 29, 1885.

Remarks—Iris dark brown. Gizzard contained caterpillars and an elytron of a beetle.

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ERRATA.

ADDITIONS TO THE ORNITHOLOGY OF GUADALUPE ISLAND.

Page 280, in table. For 385 mm. read 384 mm.

“ 283, “ “ 1691 ♂ read 1691 ♀.

“ “ “ “ 1699 ♂ “ 1699 ♀.

“ “ “ “ 2408 ♂ “ 2408 ♀.

“ “ “ “ 2504 ♂ “ 2504 ♀.

“ “ “ “ 2581 ♂ “ 2581 ♀.[†]

“ “ “ “ 2409 ♂ “ 2409 ♀.

“ 288, second line. For form read forms.

“ 289, second table. For Scott read Scott Mt.

“ “ “ “ “ Mar. 20, 1883, read Mar. 20, 1880.

“ 290, eleventh line. For Guadeloupe read Guadalupe.

“ 291, fourteenth line. For Guadeloupe read Guadalupe.

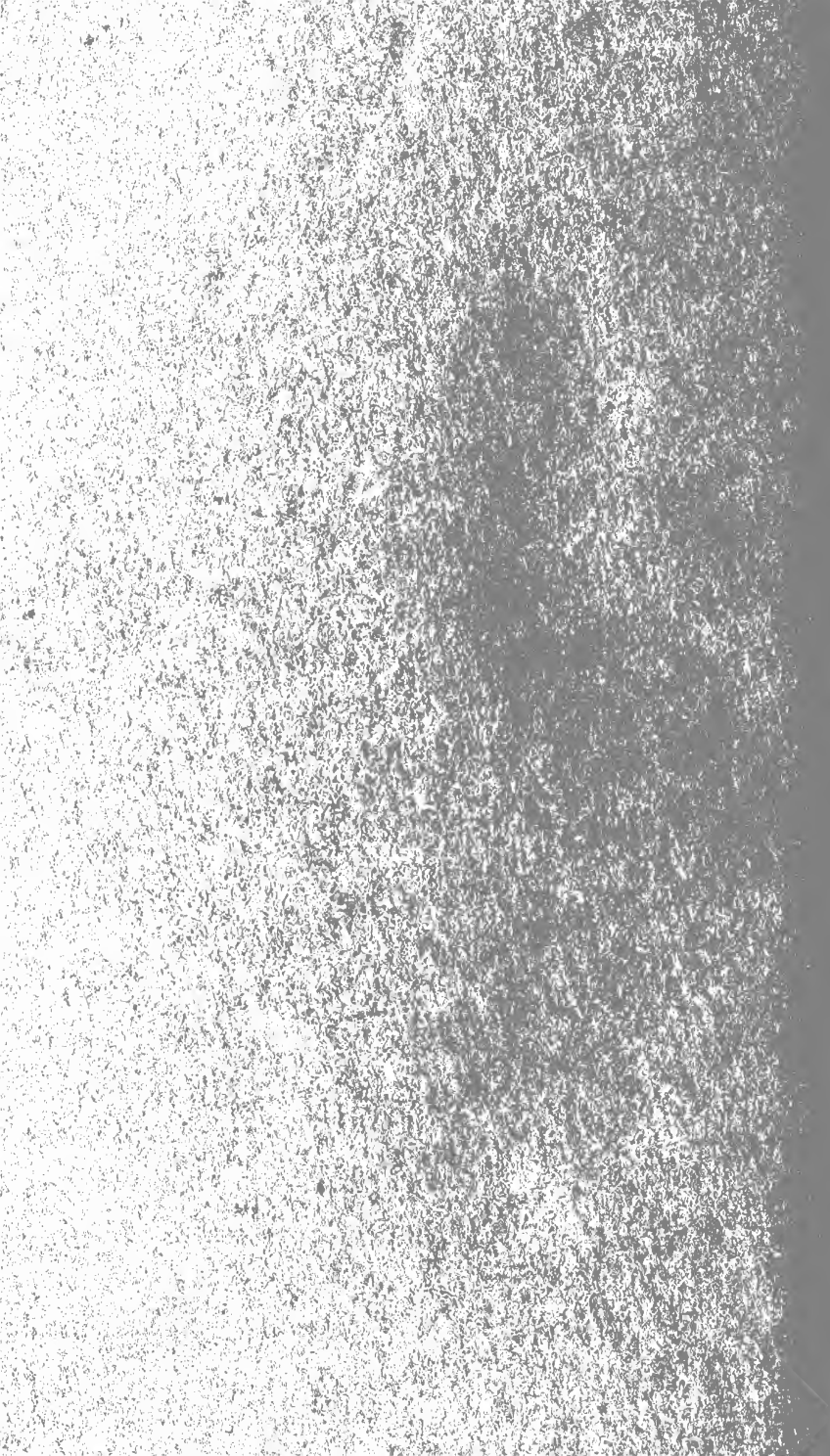
“ 299, thirteenth line. For by omitting, substitute it having omitted.

“ 299, eighth line. For Coue's read Cones'.

“ 303, second table. For ♀ ad. read ad.







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